

**What is claimed is:**

1           1. A method for making at least one micro lens comprising the steps of:  
2           depositing at least one individual portion of a substance to be flowed on a  
3           substrate;  
4           coating with an adhesion promoter said at least one individual portion of said  
5           substance to be flowed and at least the immediate surroundings on said substrate of said  
6           at least one individual portion;  
7           exposing said coated substrate and said coated at least one individual portion of  
8           said substance to be flowed to conditions which cause said substance to be flowed to  
9           flow;  
10          whereby said at least one individual portion of said substance to be flowed is  
11          formed into a micro lens shape without requiring formation of a mesa for said at least one  
12          individual portion of substance to be flowed.

1           2. The invention as defined in claim 1 further comprising the step of etching said  
2           combined substrate and said at least one individual portion of substance to be flowed after  
3           said micro lens shape is formed so that said substrate and said at least one individual  
4           portion of substance to be flowed are etched at substantially the same rate.

1           3. The invention as defined in claim 1 wherein further comprising the step of hard  
2           baking said combined substrate and said at least one individual portion of substance to be  
3           flowed after said micro lens shape is formed.

1           4. The invention as defined in claim 1 wherein said adhesion promoter is  
2           hexamethyldisilazane (HMDS).

1           5. The invention as defined in claim 1 wherein said coating is a mono layer of  
2           said adhesion promoter.

1           6. The invention as defined in claim 1 wherein said substance to be flowed is a  
2           photo resist.

1           7. The invention as defined in claim 1 wherein, in said coating step, substantially  
2 the entire surface of said substrate on which said at least one individual portion of  
3 substance to be flowed is deposited is coated by said adhesion promoter.

1           8. The invention as defined in claim 1 wherein, in said coating step, said adhesion  
2 promoter conformally coats said at least one individual portion of said substance to be  
3 flowed and said at least immediate surroundings on said substrate.

1           9. The invention as defined in claim 1 wherein said conditions which cause said  
2 substance to be flowed to flow is created at least by heating said substance to be flowed  
3 and said substrate.

1           10. The invention as defined in claim 1 wherein said conditions which cause said  
2 substance to be flowed to flow is created at least by exposing said substance to be flowed  
3 and said substrate to solvent vapors.

1           11. The invention as defined in claim 1 further comprising the step of cleaning  
2 said substrate from any residue which would prevent adhesion of said adhesion promoter  
3 prior to said coating step and after said depositing step.

1           12. The invention as defined in claim 1 further comprising the step of  
2 preconditioning said substrate prior to said coating step and after said depositing step.

1           13. The invention as defined in claim 1 wherein said at least one individual  
2 portion of a substance to be flowed is at least two portions arranged as an array.

1           14. The invention as defined in claim 1 further comprising the step of etching  
2 substantially only said at least one individual portion of substance to be flowed.

1           15. At least one micro lens manufactured by a process which comprises the steps  
2 of:

3           depositing at least one individual portion of a substance to be flowed on a  
4 substrate;

5           coating with a prescribed coating material said at least one individual portion of  
6 said substance to be flowed and at least the immediate surroundings on said substrate of  
7 said at least one individual portion;

8           exposing said coated substrate and coated portions of said substance to be flowed  
9 to conditions which cause said substance to be flowed to flow; and

10          whereby said substance to be flowed forms a lens shape without requiring  
11 formation of a mesa for said portion of substance to be flowed.

1           16. The invention as defined in claim 15 wherein said prescribed coating  
2 material is an adhesion promoter.

1           17. The invention as defined in claim 15 wherein said prescribed coating  
2 material is hexamethyldisilazane (HMDS).

1           18. The invention as defined in claim 15 wherein said portion of a substance to be  
2 flowed is photoresist.

1           19. The invention as defined in claim 15 wherein said at least one micro lens is  
2 an array of a plurality of micro lenses each originating from its own respective individual  
3 portion of said substance to be flowed.

1           20. The invention as defined in claim 15 wherein said at least one micro lens is  
2 an array of a plurality of micro lenses at least one two of which originate from a single  
3 individual portion of said substance to be flowed.

1           21. A micro lens array formed on a substrate, each micro lens of said array being  
2 characterized in that it has no visible mesa after its manufacture.

1           22. A method for making at least one micro lens comprising the steps of:  
2           depositing at least one individual portion of a substance to be flowed on a  
3 substrate so that said at least one individual portion of said substance to be flowed has a  
4 prescribed footprint; and  
5           pinning, with a conformal coating of a prescribed coating material, said at least  
6 one individual portion of said substance to be flowed substantially to said footprint so  
7 that when said substance to be flowed is exposed to conditions which cause it to flow said  
8 substance to be flowed is formed into a lens shape having said footprint.

1           23. The invention as defined in claim 22 wherein said prescribed coating material  
2 comprises an adhesion promoter.

1           24. The invention as defined in claim 22 wherein said conformal coating is a  
2 coating of hexamethyldisilazane (HMDS).

1           25. A micro lens which was formed from a portion of a substance which was  
2 flowed, said substance which was flowed having been contained in at least an initial  
3 footprint substantially only by a conformal coating of a prescribed coating material at  
4 least traces of which are detectable in the immediate vicinity of said micro lens.

1           26. The invention as defined in claim 25 wherein said substance which was  
2 flowed comprises a positive photoresist.

1           27. The invention as defined in claim 25 wherein said initial footprint is modified  
2 by further etching said at least one micro lens.

1           28. The invention as defined in claim 25 wherein said at least one micro lens is a  
2 member of an array of a plurality of micro lenses.

1           29. The invention as defined in claim 25 wherein said conformal coating is a  
2 mono layer.